

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-5, 7-15, 17-18, 21-22 and 24 are currently active in the case. Claims 6, 16, 19-20, 23 and 25 were cancelled by a previous amendment. The present amendment amends Claims 1, 11, 17, and 21 without introducing any new matter or raising new issues that would require further search and/or consideration.

In the pending Office Action, Claims 1-4, 7-14, 17-18, 21-22 and 24 were rejected under 35 U.S.C. § 102(e) as being anticipated by Haitsma et al. (U.S. Patent No. 6,505,223, hereinafter “Haitsma”). Claims 5 and 15 were indicated as allowable if rewritten in independent form.

Applicants acknowledge with appreciation the indication of allowable subject matter. However, because Applicants believe that independent Claim 1, 11, 17, and 21, from which Claims 5 and 15 depend, respectively, include allowable subject matter, Claims 5 and 15 are maintained in dependent form a present time.

First, Applicants wish to thank Examiner Hoang for the courtesy of an interview granted to Applicants’ representative Nikolaus P. Schibli on March 25, 2008, at which time the outstanding issues in this case were discussed. Arguments similar to the ones developed hereinafter were presented and the Examiner indicated that in light of the arguments and claim amendments to the independent claims, he would reconsider the outstanding grounds for rejection upon formal submission of a response.

In response, independent Claim 1 is amended to correct a minor formality. In particular, Claim 1 is amended to recite “a correlator operable to generate for the marked material unit a dependent correlation value by correlating the part of the code word recovered from the material unit with a corresponding part of at least one of a re-generated code word

from the code word set.” These amendments are supported in the disclosure as originally filed, for example in the specification at p. 13, ll. 6-8. No new matter has been added. In addition, remaining independent Claims 11, 17 and 21 have been amended accordingly.

Briefly summarizing, Applicants’ independent Claim 1 is directed to data processing apparatus, including *inter alia* a detector that allows the combination of code word parts *from successive material units* to form the dependent correlation value. This feature is represented in a non-limiting example in Applicants’ Fig. 8. As shown in Fig. 8, parts of the code word $X'_{(i)}$ can be derived from successive material units of the material item that are combined (by the tree structure shown) to form the dependent correlation value. Applicants’ specification explains in a non-limiting embodiment with respect to the representations of Fig. 9 that on a first hierarchical level HL1, “none of the sim(i) values calculated for the individual images exceeds the threshold TH. For this reason the detector 60 proceeds to the next hierarchical level HL2 and *combines parts of successive pairs of images* to form a dependent correlation value for two successive images.” (Specification, from p. 14, l. 30, to p. 15, l. 3, Figs. 8-9.)

As further explained with respect to Applicants’ specification at p. 15, ll. 18-27, and also shown in Fig. 8, by calculating dependent correlation values by combining code word parts from successive images, in iteratively increasing numbers, an improvement in the likelihood of correctly detecting a code word is provided. For example, in hierarchical level HL1, the dependent correlation values are calculated from an individual image or frame 0, 1, 2, etc. At hierarchical level HL2, two successive images are taken into account (i.e. 0 and 1), and at hierarchical level HL3, four successive image are taken into account (i.e. 0, 1, 2, and 3.) Please note that the above discussion is citing examples of embodiments that are provided for explanatory purposes only that are not intended to limit the scope of the claims.

Turning now to the applied reference, Haitsma describes a method for detecting and embedding a watermark in an image, where the suspect image is subjected to symmetrical

phase only matched filtering, prior to detecting the amount of correlation between the signals of the image. (Haitsma, Abstract, Fig. 8.) Haitsma explains with respect to Fig. 5 that frames of images are accumulated into groups of frames, and the groups of frames are partitioned into blocks of equally sized segments, called “tiles.” (Haitsma, col. 2, ll. 45-50, col. 3, ll. 29-34, Figs. 2 and 4, reference numerals 21, 22, Fig. 5.) In Haitsma, the watermarking is then applied repeatedly for every tile that makes up the entire image, to facilitate the detection process. (Haitsma, col. 2, ll. 45-49.) To embed a watermark W into such image, every image tile is built up from a limited set of basic, uncorrelated watermark tiles W_i from the watermark W , and a shifted version thereof, for example by a vector k . (Haitsma, col. 3, ll. 10-21, Fig. 3.)

However, Haitsma fails to teach all the features of Applicants’ independent Claim 1. In particular, the cited passages of Haitsma fails to teach:

the correlator is operable ... to form the recovered part of the code word **from code word parts from successive material units** the recovered part of the code word iteratively increasing in a number of code word parts used ... , the iteration continuing until the whole code word is recovered and correlated with the whole regenerated code word, or the predetermined threshold exceeded.

(Claim 1, portions omitted, emphasis added.) The pending Office Action points out to Haitsma’s passages starting at col. 3, l. 38, to col. 4, l. 45, and assert that these passages of Haitsma teaches such a feature. Applicants respectfully disagree with such assertion.

In these passages, Haitsma explains how the detection of a watermark W having tiles W_i in a suspected signal q is performed. (Haitsma, col. 3, ll. 38-39.) Haitsma computes the correlation between a suspect information signal q , and a watermark pattern W . (Haitsma, col. 3, ll. 42-45.) Haitsma says that it is possible to successively correlate all watermark tiles W_i of the watermark pattern W to the signal q , to find for which tile W_i the correlation is maximal, and to thereby detect the shift vector k . (Haitsma, col. 3, ll. 61-64.) However,

Haitsma also explains that such method is time consuming. (Id., col. 3, l. 65.) Therefore, Haitsma proposes an alternative method, where a particular tile W_i is successively applied to the signal q with different vectors k , to find out for which k the correlation is maximal. (Haitsma, col. 4, l. 4-18, Fig. 4.) In other words, the same tile W_i is applied with all the possible different shift vectors k , until the correct value for k is found.

Therefore, Haitsma clearly fails to teach that when the dependent correlation value does not exceed the predetermined threshold, the correlator is operable to form the recovered part of the code word from code word parts from successive material units, as required by Applicants' independent Claim 1. In other words, the code word part is combined with a code word part recovered from a subsequent image. In Haitsma, no recovered part of the code word is formed from ***successive material units***.

Therefore, the cited passages of Haitsma fail to teach every feature recited in Applicants' Claim 1, so that Claims 1-5 and 7-10 are believed to be patentably distinct over Haitsma. Accordingly, Applicants respectfully traverse, and request reconsideration of, the rejection based on Haitsma.¹

With respect to Applicants' independent Claim 17, this claim recites "to generate dependent correlation values for each iteratively increased recovered part of the code word by correlating with corresponding parts of the re-generated code word." In accordance with the above discussion regarding patentability of independent Claim 1, Applicants respectfully submit that at least the above quoted Claim 17 feature is not taught by Haitsma.

Independent Claims 11 and 21 recite features analogous to the features recited in independent Claim 1, but directed to different statutory classes. Accordingly, for the reasons stated above for the patentability of Claim 1, Applicants respectfully submit that the

¹ See MPEP 2131: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," (Citations omitted) (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

rejections of Claims 11 and 21, and all associated dependent claims, are also believed to be overcome in view of the arguments regarding independent Claim 1.

The present amendment is submitted in accordance with the provisions of 37 C.F.R. § 1.116, which after Final Rejection permits entry of amendments placing the claims in better form for consideration on appeal. As the present amendment is believed to overcome outstanding rejections under 35 U.S.C. §102(e), the present amendment places the application in better form for consideration on appeal. In addition, the present amendment is not believed to raise new issues because the changes to Claims 1, 11, 17 and 21 are of a minor nature. It is therefore respectfully requested that 37 C.F.R. § 1.116 be liberally construed, and that the present amendment be entered.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-5, 7-15, 17-18, 21-22 and 24 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

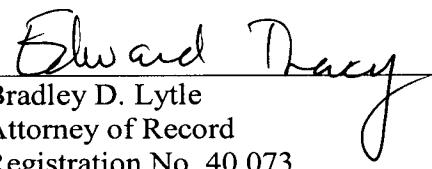
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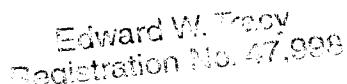


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